

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of managing defects on a recording medium having at least one recording layer, the method comprising the steps of:

allocating at least one first temporary defect management area with a fixed size and at least one second temporary defect management area with ~~an initial variable size~~ one of variable sizes to the recording medium, respectively; and

recording defect management information on one of the at least one first temporary defect management area and the at least one second temporary defect management area,

wherein in the step of recording, the at least one first temporary defect management area and the at least one second temporary defect management area are used in sequential order to record therein the defect management information.

2. (Previously Presented) The method of managing of claim 1, wherein the recording medium has at least two recording layers, a first recording layer which includes the first temporary defect management area and the second temporary defect management area, and a second recording layer which includes the first temporary defect management area and at least two second temporary defect management areas.

3. (Previously Presented) The method of managing of claim 1, wherein in the allocating step, the at least one first temporary defect management area is allocated to at least one of a lead-in area and a lead-out area of the recording medium.

4. (Previously Presented) The method of managing of claim 3, wherein in the allocating step, the at least one second temporary defect management area is allocated to at least one spare area of the recording medium.

5. (Previously Presented) The method of managing of claim 4, wherein the at least one spare area includes an inner spare area and an outer spare area on the recording medium.

6. (Original) The method of managing of claim 1, wherein the step of allocating further comprises:

allocating at least one inner spare area, a portion of which is used to replace a defective area;

allocating at least one outer spare area, a portion of which is used to replace a defective area; and

allocating a portion of the at least one outer or inner spare area as a temporary defect management area to manage defect management information.

7. (Currently Amended) The method of managing of claim 1, wherein in the step of allocating, the at least one second temporary defect management area is allocated to a first outer spare area on the recording medium and ~~has an initial size variable depending~~the one of the variable sizes with which the at least one second temporary defect management area depends on a size of the entire first outer spare area.

8. (Previously Presented) The method of managing of claim 1, wherein in the step of allocating, the recording medium has at least two recording layers, a first recording layer which includes a first inner spare area, an entire area of which is used to replace a defective area and a first outer spare area having a variably allocated size, and a second recording layer which includes a second inner spare area and a second outer spare area.

9. (Previously Presented) The method of managing of claim 4, wherein in the step of allocating, if the at least one spare area is not allocated, the at least one second temporary defect management area is not allocated, but only the at least one first temporary defect management area is allocated.

10. (Previously Presented) The method of managing of claim 4, wherein in the step of allocating, if the at least one spare area is allocated, the at least one second temporary defect management area is not allocated, but only the at least one first temporary defect management area is allocated.

11. (Previously Presented) The method of managing of claim 1, wherein the recording medium is a write-once blu-ray disc (BD-WO).

12. (Original) The method of managing of claim 1, wherein in the step of recording, said defect management information includes at least one temporary defect list (TDFL) and at least one temporary disc definition structure (TDDS).

13. (Original) The method of managing of claim 12, wherein the size of the at least one temporary disc definition structure is fixed, and the size of the at least one temporary defect list is variable.

14. (Original) The method of managing of claim 12, wherein the at least one temporary defect list and the at least one temporary disc definition structure are separated.

15. (Original) The method of managing of claim 12, wherein the at least one temporary defect list and the at least one temporary disc definition structure are integrated.

16. (Previously Presented) The method of managing of claim 1, wherein in the step of recording, the at least one first temporary defect management area is used prior to using the at least one second temporary defect management areas.

17 – 23. (Canceled)

24. (Previously Presented) The method of managing of claim 1, wherein the at least one second temporary defect management area is accessed first at an initial time of loading the recording medium.

25. (Original) The method of managing of claim 1, wherein in the recording step, the defect management information includes full indication information providing notification of which area among the temporary defect management areas is full.

26. (Previously Presented) The method of managing of claim 1, further comprising:
recording defect management information on a permanent defect management area of the recording medium when the recording medium is to be finalized.

27. (Previously Presented) The method of managing of claim 1, further comprising:
recording defect management information in a permanent management area of the recording medium when a spare area of the recording medium is full.

28. (Previously Presented) The method of managing of claim 1, further comprising:
recording defect management information on a permanent management area of the recording medium when the temporary defect management areas are full and defects cannot be managed any longer.

29. (Currently Amended) An apparatus for managing defects on a recording medium, the apparatus comprising:

a pickup configured to record data on the recording medium;
a servo unit configured to control the pickup to maintain a distance from the recording medium and to track a pertinent track on the recording medium;

a data processor configured to process and provide input data to the pickup;
an interface configured to exchange data with an external device;
a memory configured to store information associated with the recording medium; and
a microcomputer, operatively coupled to the pickup, the servo unit, the data processor, the interface and the memory, and configured to allocate at least one first temporary defect management area with a fixed size and at least one second temporary defect management area with ~~an initial variable size~~ one of variable sizes to the recording medium, respectively, and to control the pickup to record defect management information on one of the at least one first temporary defect management area and the at least one second temporary defect management area,

wherein the at least one first temporary defect management area and the at least one second temporary defect management areas are used in sequential order to record therein the defect management information.

30. (Currently Amended) ~~A computer-readable~~ An optical recording medium having at least one recording layer, the ~~computer-readable optical~~ recording medium comprising

at least one first temporary defect management area allocated with a fixed size and at least one second temporary defect management area allocated with ~~an initial variable size~~ one of variable sizes, wherein defect management information is recorded on one of the at least one first temporary defect management area and the at least one second temporary defect management area, and wherein the at least one first temporary defect management area and the at least one

second temporary defect management area are used in sequential order to record therein the defect management information.

31. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the recording medium comprises at least two recording layers, including: a first recording layer, which includes the first temporary defect management area and the second temporary defect management area; and a second recording layer which includes the first temporary defect management area and at least two second temporary defect management areas.

32. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the at least one first temporary defect management area is located in at least one of a lead-in area and a lead-out area of the recording medium.

33. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 32, wherein the at least one second temporary defect management area is located in at least one spare area of the recording medium.

34. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 33, wherein the at least one spare area includes an inner spare area and an outer spare area on the recording medium.

35. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, further comprising:

at least one inner spare area, a portion of which is used to replace a defective area; and
at least one outer spare area, a portion of which is used to replace a defective area, wherein a portion of the at least one outer or inner spare area is used as a temporary defect management area to manage defect management information.

36. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the at least one second temporary defect management area is located in a first outer spare area on the recording medium and ~~has an initial size variable depending~~the one of variable sizes with which the at least one second temporary defect management area is allocated depends on a size of the entire first outer spare area.

37. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein said recording medium has at least two recording layers, said at least two recording layers comprising:

a first recording layer which includes a first inner spare area, an entire area of which is used to replace a defective area and a first outer spare area having a variably allocated size; and
a second recording layer which includes a second inner spare area and a second outer spare area.

38. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the recording medium is a write-once blu-ray disc (BD-WO).

39. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein said defect management information includes at least one temporary defect list (TDFL) and at least one temporary disc definition structure (TDDS).

40. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 39, wherein the size of the at least one temporary disc definition structure is fixed, and the size of the at least one temporary defect list is variable.

41. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 39, wherein the at least one temporary defect list and the at least one temporary disc definition structure are separated.

42. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 39, wherein the at least one temporary defect list and the at least one temporary disc definition structure are integrated.

43. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the at least one first temporary defect management area is used prior to using the at least one second temporary defect management areas.

44 – 50. (Canceled)

51. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the at least one second temporary defect management area is accessed first at an initial time of loading the optical recording medium.

52. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, wherein the defect management information includes full indication information providing notification of which area among the temporary defect management areas is full.

53. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, further comprising:

a permanent management area to record therein defect management information when the recording medium is to be finalized.

54. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, further comprising:

a permanent management area to record therein defect management information when a spare area of the recording medium is full.

55. (Currently Amended) The ~~computer-readable~~optical recording medium of claim 30, further comprising:

a permanent management area to record therein defect management information when the temporary defect management areas are full and defects cannot be managed any longer.

56. (Previously Presented) The apparatus of claim 29, wherein the microcomputer is further configured to control the pickup to record defect management information in the at least one first temporary defect management area prior to recording in the at least one second temporary defect management areas.

57. (Previously Presented) The apparatus of claim 29, wherein the microcomputer is further configured to control the pickup to record at least one temporary defect list (TDFL) and at least one temporary disc definition structure (TDDS) as defect management information.

58. (Previously Presented) The apparatus of claim 57, wherein the size of the at least one temporary disc definition structure is fixed, and the size of the at least one temporary defect list is variable.

59. (Previously Presented) The apparatus of claim 57, wherein the microcomputer is further configured to control the pickup to record the at least one temporary defect list and the at least one temporary disc definition structure in a separate cluster, respectively.

60. (Previously Presented) The apparatus of claim 57, wherein the microcomputer is further configured to control the pickup to record the at least one temporary defect list and the at least one temporary disc definition structure in a same cluster.

61. (Currently Amended) A method of reproducing management information managing defects on a write-once optical recording medium having at least one recording layer, the method comprising the steps of:

reproducing, from one of first and second temporary defect management areas of the optical recording medium, defect management information before the optical recording medium is finalized, the first temporary defect management area allocated with a fixed size and the second temporary defect management area allocated with ~~an initial variable size~~ one of variable sizes; and

reproducing, from a permanent defect management area of the optical recording medium, a last defect management information after the optical recording medium is finalized, the last defect management information reflecting a status of the optical recording medium at a moment when the optical recording medium is finalized.

62. (Previously Presented) The method of claim 61, wherein before the optical recording medium is finalized, the defect management information is reproduced from the first temporary defect management area allocated in at least one of a lead-in area and a lead-out area of the optical recording medium.

63. (Previously Presented) The method of claim 61, wherein before the optical recording medium is finalized, the defect management information is reproduced from the second temporary defect management area allocated in a spare area allocated in a data area of the optical recording medium.

64. (Previously Presented) The method of claim 61, comprising:
reproducing indication information indicating which temporary defect management area is full; and
recording updated defect management information onto a temporary defect management area indicated being not full by the indication information.

65. (Currently Amended) An apparatus for reproducing management information managing defects on a write-once optical recording medium having at least one recording layer, the apparatus comprising:

a pickup configured to write/read data to/from the optical recording medium;
a servo unit configured to control the pickup to maintain a distance from the optical recording medium and track a pertinent track on the recording medium;
a data processor configured to process and provide input data to the pickup;
an interface configured to exchange data with an external device;
a memory configured to store information associated with the optical recording medium;
and

a microcomputer operatively coupled to the pickup, the servo unit, the data processor, the interface and the memory, and configured to reproduce, from one of first and second temporary defect management areas of the optical recording medium, defect management information before the optical recording medium is finalized, the first temporary defect management area allocated with a fixed size and the second temporary defect management area allocated with ~~an initial variable size~~one of variable sizes, and to reproduce, from a permanent defect management area of the optical recording medium, a last defect management information after the optical recording medium is finalized, the last defect management information reflecting a status of the optical recording medium at a moment when the optical recording medium is finalized.

66. (Previously Presented) The apparatus of claim 65, wherein before the optical recording medium is finalized, the microcomputer is further configured to reproduce the defect management information from the first temporary defect management area allocated in at least one of a lead-in area and a lead-out area of the optical recording medium.

67. (Previously Presented) The apparatus of claim 65, wherein before the optical recording medium is finalized, the microcomputer is further configured to reproduce the defect management information from the second temporary defect management area allocated in a spare area allocated in a data area of the optical recording medium.

68. (Previously Presented) The apparatus of claim 65, wherein the microcomputer is further configured to reproduce indication information indicating which temporary defect management area is full and record updated defect management information on a temporary defect management area indicated the area is not full.